

Pre-service Teachers' Experiences of Creativity and Enhanced Appreciation of Natural Environments

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Abstract

A 21st century Australian government [1] futures focus includes creativity and sustainability as cross-curricular priorities for education, leading to "healthy, productive and rewarding futures" (p. 4) for individuals and a competitive edge for the national economy. However, first year pre-service teachers express a lack of confidence in these priority areas, citing a disconnection between 'talk' of transformative education for lifelong and life-wide learning, and their lived experience as learners and future educators. The author presents evidence that creative engagement in natural environments has the potential to bridge that gap, enhancing pre-service teachers' perceptions of personal creativity, wellbeing and connectedness with the natural world, and supporting their agency in aligning theory and practice. She contends that this alignment is essential to counteracting a hidden curriculum that discourages risk-taking and devalues human connections with natural environments.

1. Introduction

Australian national descriptors for a quality 21st century education emphasize creativity and sustainability as indicators for global survival, competitiveness and lifelong and life-wide learning [2];[3]. Encapsulated within those imperatives are micro-requirements: the psycho-social and personal wellbeing of the individual and his or her ability to engage with society as a creative and productive agent; opportunities and benefits from individuals' lifelong learning; and respect for others as part of a "skilled workforce confident in its ability to compete in future global markets" [4] (p. 13). This vision emphasises the importance of information and communication technologies and the Internet as a means of educating a skilled and adaptable future workforce. Concepts of sustainability are therefore underpinned by requirements for economic competitiveness informing curriculum and pedagogy, leading to an increased focus on public reporting of

results of student achievement on literacy and numeracy tests, as advocated by the Dowling report [5].

The research project that informs this paper commenced with a focus on the ways in which future teachers experience personal creativity and form understandings of their place in a sustainable world. However, the intensity of pre-service teacher responses to their time spent in natural environments led to an adjustment in the lens through which the research team viewed the data. Participants made connections between their experience of being outdoors, and feeling more creative. The outdoor experience allowed them to engage the senses, to feel "the sunshine and smell the grass and leaves" observing that "this is what you need to be creative". However, the impact of that experience upon the quality of their creative work was less noticeable. What was significant in the data was the affective response of participants: many respondents wrote poignantly of a sense of lost contact with the natural world: "We are always indoors now, in class, watching TV, on the computer. Sometimes I feel just locked in my head".

For this reason the research team decided to re-focus the study to explore students' sense of being disconnected from nature, and whether re-immersion in natural environments may impact upon that perception and their understandings of belonging in the natural world. The researchers consider this adjustment in focus is both valid and timely, given that future teachers are required to inspire children's understanding of, and awareness of the connection between humans and the natural world for more sustainable environments.

Since the 1970's research has documented a significant reduction in child and adult contact with natural environments in western and westernized societies: Kellert, [6] (p. 120) observes the impact of children's increasingly mediated and vicarious experience of their worlds through technologies; Malone, [7], also suggests that media reporting of crimes may have led to parents becoming fearful

of imagined risks leading to a tendency to overprotect their children; further, Louv [8] points to the loss of wild and neglected plots of land in urban areas, the destruction of natural environments, and legal constraints that restrict adventurous play in urban environments as causal factors in what he describes as “Nature deficit disorder” (para.2).

Kellert’s [9] observation that engagement in natural worlds may enrich “exploration, creativity, and discovery” (p 12), is supported by Maller et al. [10] who report lasting beneficial “emotional, and physiological changes” (p.55) as a result of engagement with nature, and as an outcome of observing green spaces (p. 67). Similarly, the author [11];[12] notes that in addition to the positive impact upon psycho-social wellbeing, intellectual development is also enhanced as a consequence of playful learning in natural environments.

In terms of the impact of immersion in natural environments upon their creativity, while participants’ creative works emerging from their time in natural environments were both rich and imaginative, it was the affective response of participants that emerged most strongly, and which was markedly different from that of their peers taking the course on other campuses or online. Participants who took part in the immersive study reported experiencing intense pleasure, intellectual and creative inspiration and a sense of liberation during their learning in natural environments, more so than in the classroom.

This led the researchers to refocus the study so as to inquire into how natural environments impact upon pre-service teachers’ sense of wellbeing and connectedness with the world. In this paper, where participants are quoted, non-coded comments are anonymous observations gathered during reflection processes by the group of 88 participants who spent time in natural environments. Those in italics were gathered during in depth focus group discussions (F2.p4 is participant number 4’s response during focus group 2) filmed or recorded after immersion experiences. Quotations that are coded indicate survey question responses and participant number (eg. Q4.R10 is student number 10’s response to question 4 on a survey in which a total of 115 students participated).

2. The Study Background

This sole-authored paper is the first of a series of publications by an all-female research team that includes a teacher educator and undergraduate program coordinator, an Indigenous woman who is a descendent of the Goomeri/Gamillraay/Kamillaroi people, who is an environmental researcher and artist, and 2 researchers from Australian Digital Futures

Institute. It reports early findings from a longitudinal mixed-methods study into pre-service teachers’ feelings of belonging and wellbeing as a result of their immersion in natural environments. The paper reports on data gathered during the first 2 years of a 7 year project.

Data include responses to online and print surveys into pre-service teachers’ self perceptions of their relationship with the natural world, and their sense of confidence and wellbeing during their first year of study during which they experienced several courses with a strong focus upon creativity and engagement in natural environments, or environments that offered virtual experiences consistent with those of ‘real’ natural environments.

In semester 1 2010, 88 students taught by the researcher on one campus experienced 3 x 2 hour sessions of immersion in a natural environment (a Japanese garden), during their arts classes, completing written reflections immediately after the third of those experiences. Following the three weeks’ of immersion in natural environments the researcher invited students to 3 in-depth focus group discussions, which were recorded. In semester 2, 9 students from that group experienced a full-day immersion experience into the land and its significance for Indigenous peoples, led by the researcher. The day included stops in rural locations, and a 3 hour experiential session at the Gummingurru Stone site with permission of the custodians of the site, and guided by an Indigenous female researcher and her adult son. Participants completed written reflections taken at various points in the day which were gathered as data. One month after this full-day experience further focus group sessions were filmed and participant discussions were transcribed giving detailed insights from 5 student participants and 2 of the researcher-facilitators. Subsequent papers will report findings from this study into pre-service teacher perceptions of being in a natural-seeming (virtual) world environment, and during their re-experiencing the land (areas of southeast Queensland) from Indigenous perspectives.

The study is important in that it points to a disparity between the Australian government’s stated purpose that education should privilege engagement in the natural world in the interests of enhancing wellbeing and sustainability, and the translation of that vision into practice in primary schools and in university courses for pre-service teachers in Queensland, as discussed by Kalantzis and Cope [13]. It is consistent with a growing body of research documenting the impact of children’s disconnect with nature [10];[14];[15] upon their current and future psycho-physiological health and creativity, but takes that observation into the context of teacher education. Participants in the study perceived that the children

with whom they will work may have limited time outdoors, and this caused them to reflect whether they themselves may have experienced a similar upbringing. "Children live in an aseptic world - computers, TV, no exercise. This sort of experience is really important for 'bubble wrap kids' and maybe for their teachers too!" (Q10.R2)

The early findings of this study suggest that the undergraduate intake of undergraduates in 2010 may be the first generation of future teachers who have experienced that disconnection, with implications for their future teaching, as suggested by a student's concern at the proposal she experience an outdoor arts lesson away from the familiar world of the classroom: "Do we *have* to go outside?"

This cohort is also the first generation of teachers in Australia for whom closures and mergers of small and rural schools into larger entities may have had a personal impact [16] and who will have experienced, systematic measuring, testing and reporting of their learning has informed curriculum and pedagogy. The findings of this study indicate that their experience may have been limited as a result of those factors. Finally, they are also possibly the first to experience as adults and future educators, the impact of far-reaching legal constraints and health and safety regulations upon their freedom as children to experience adventurous play and access to natural and wild environments.

3. The Respondents

The study population is drawn from an undergraduate program for future educators in a university with multiple regional or urban campuses in Queensland Australia, and where more than 1/3 of all students enrol and study fully online. An online survey to which 115 of a possible 537 first year students from the 2010 intake of undergraduates responded, indicated the majority of participants (85.1%) in the first year of the study were female and aged between 17 – 30 (82.9%). A high number (93.8%) of the 115 respondents indicated their perception that creativity and awareness of sustainability are very or extremely important for teaching, with 82.1% considering that an understanding of nature is important for a sustainable 21st century.

4. The Immersion Experiences

180 first year pre-service teachers on a regional university campus spent 2 hours of their Arts Curriculum lessons per week over a 3 week period in a Japanese garden. During the that time they were asked to find a space which they found appealing, and

to spend 10 minutes in that place, focusing upon the natural environment through sight, hearing, touch, sound and movement. Then students worked in pairs or small groups to choose locations in the Japanese garden which stimulated their imaginations, and to share these perceptions with peers. The pairs or groups were given a challenge to create, script, film and present a dramatic story over a 3 week period using those locations as backgrounds for their narratives. The 2 hour immersion experiences were followed by 2 hour classroom sessions which allowed editing, artwork or drama and movement practice to take place. During the immersion experience students also captured their chosen locations digitally, by sketching, or through written description. After the initial session, students were asked to reflect on their experience, anonymously.

As the environment included a lake, streams, waterfalls with stepping stones, reflections and shadows, pebble gardens, wooden shelters, bridges, stands of bamboo, cushioned lawns beneath broad spreading trees, and hidden paths through woodland, it offered a profusion of spaces for tranquil or adventurous learning. A student commented: *Water relaxes me, there is something about running water that just irons out any badness, I can walk into a rainforest feeling intense anger and want to punch things, and walk out of it like I've been floating in a bubble my whole life*"(F1.p3).

While feedback from students indicated that they enjoyed and found this experience of creative story-making liberating and stimulating, another narrative emerged from the data: for many students, this was their first experience since early primary years, of extended time engaging in and focusing upon a natural environment.

5. The Control Groups. No Immersion

On a second campus, 137 students met similar creative challenges, but in an entirely classroom-based context. A further 220 students completed the creative project working independently and online. All 537 students in the cohort reflected on their confidence in their personal creativity, creating electronic presentations that demonstrated how they would integrate the arts across the curricula for deep learning.

6. Findings

The 180 participants in the nature immersion group, and those who attended the 1 day Indigenous histories and perspectives experience observed that proximity with nature can be inspiring, but their considerations of using natural environments in their future work as teachers were always couched in

terms of compliance with Occupational Health and Safety regulations: "With safety management, being near water is inspiring for kids - they can watch it, touch it, listen to it. Mostly we tell children just to keep away from water, instead of letting them play. We worry about dirt and germs but kids need that experience" (Q10.R84). Their creative works were of not significantly better than those of their peers from other campuses or who had studied online. However, students who experienced working in a natural environment noted that being in a natural context seemed to trigger a return to the thought patterns and emotional responses of a younger self: a participant reported "I used to play outside all the time as a child. Spending time in the garden reminded me of that. It was so...liberating." and "It was awesome to hear the sounds of the birds... the water. I got on so well with my group - we felt sort of freer than in class" (Q10.R64). This response is more consistent with a learner-emergent curriculum than a directed curriculum [17].

Participants reported that a sense of greater freedom was accompanied by a perception that working in groups was easier, and that exchanging tables, desks and walls for rocks, grass and flowing water allowed more fluid negotiations and co-operative relationships. Also, perceptions of a shift from western 'clock time' to the context and experience-informed 'event time' which is more consistent with Indigenous ways of knowing and understanding the land and being, were another feature of respondents' reflections on their experiences in natural environments: "I felt much more relaxed and was able to take in what (the teacher) was saying rather than continuously checking the clock for the time" (Q10.R13).

A minority of students found being outdoors threatening, unfamiliar, uncomfortable, or unhygienic: "The bats were disgusting and noisy I hate them! Lots of people are scared of bats..." (Q10.R61). Students who disliked or felt uncomfortable in natural environments expressed a need for a more controlled environment: "being out doors there is more distractions and it is harder to be by yourself...even though I prefer being in doors I understand why it is important to take children outside" (Q 10.R12).

Also, some participants objected to walking from the classroom to the park, a distance of 600 yards. "At first I was really lazy and couldn't be bothered to walk all the way over to the Japanese gardens but as soon as I could see how beautiful and stimulating it was, I loved it" (F1.p1). The sensuous experience of being outdoors found expression in students' coursework, with electronic presentations from the 'natural immersion group' including

a greater frequency of nature images than those from students in the control on-campus and online groups.

University feedback from students in the course where natural immersion took place rated their enjoyment of the 15 week semester, the quality of teaching, their learning and their sense of wellbeing far more highly than their peers in the course who studied on other campuses or online, where there was no natural immersion experience. Evaluations from the natural immersion group also rated the design of the course to be well above the university and course average, whereas students on other campuses and studying online did not rate the design of the course so highly as those from the 'nature immersion' campus. The course content, other than the immersion experience, was identical for all students. Students from the immersion experience campus reported their engagement in natural environments inspired them "to do something wonderful." (Q10.R9). Participants from the control on-campus group and the online cohort reported similar levels of satisfaction across the same measures.

The researchers consider that a factor, other than the natural immersion experience, that may have impacted on student feedback and which could lead to a false result was the quality or style of teaching on the respective campuses and the difference between on-campus and online. A future offer of the course could be used to test this, with a natural immersion experience being offered on one of the other campuses with a different academic team teaching.

Another finding emerging from student feedback was the high number of respondents who expressed a lack of confidence in their personal creativity, noting that others perceived them to be more creative than they considered themselves to be. The researcher considers that this perception may reflect anxiety of participants commencing their first semester at university, and one where they must study an Arts course. However, this lack of confidence appeared to reflect a commensurate lack of experience in the arts. Given that many of the students had only recently completed formal secondary schooling, this was surprising.

The majority of undergraduates report a lack of experience in the arts, and also a lack of experience time spent outdoors during their teens and 20's. They perceive rules in school as a reason for their lack of experience, and consider that this restriction will extend to their future careers: "As a teacher in a classroom I think we will be bound by the set rules in place by the school" (Q.8.R.83).

7. Conclusions

The evidence suggests that undergraduates commencing pre-service teacher education in the early 21st century may have limited recent experience of engaging with natural environments. In the context of educational futures where knowledge, appreciation and understanding of the natural world, from western or Indigenous perspectives will be important for sustainability education, pre-service teacher education may be required to support learners as they address that experiential gap.

Acknowledgement of Country

The authors acknowledge the traditional custodians of the lands on which this research has been conducted, the Gaibal, Jarowair, Ugarapul and Butchulla peoples. Acknowledging the wisdom of Elders past, present and future, we walk together in the spirit of reconciliation.

Ethics Clearance

Ethics Clearance for this research has been granted by the researchers' institution under codes: H07STU707 and H11REA038.

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